(1) producing a halogen-terminated vinyl polymer by atom transfer radical polymerization and

(2) converting the terminal halogen of said polymer to a phenol group-containing substituent group.

5. (Amended) The heat-curable composition according to Claim 1

wherein the (A) component vinyl polymer has its main chain produced by polymerizing a (meth) acrylic monomer.

8. (Amended) The heat-curable composition according to Claim 1

wherein the (A) component vinyl polymer has its main chain produced by polymerizing a styrenic monomer.

9. (Amended) The heat-curable composition according to Claim 1

wherein the (A) component vinyl polymer has a ratio (Mw/Mn) of weight average molecular weight (Mw) and number average molecular weight (Mn) as measured by gel permeation chromatography of less than 1.8.

10. (Amended) The heat curable composition asccording to Claim 1

wherein the (A) component vinyl polymer has a number average molecular weight of 500 to 100,000.

11. (Amended) A shaped article

as obtainable by curing the heat-curable composition according to Claim 1.

14. (Amended) The polymer according to Claim 12

wherein the (A) component vinyl polymer has its main chain produced by the atom transfer radical polymerization of a vinyl monomer.

15. (Amended) The polymer according to Claim 12

wherein the (A) component vinyl polymer is obtainable by the procedure comprising

(1) producing a halogen-terminated vinyl polymer by atom transfer radical polymerization and

(2) converting the terminal halogen of said polymer to a phenol group-containing substituent group.

16. (Amended) The polymer according to Claim 12

wherein the (A) component vinyl polymer has its main chain produced by polymerizing a (meth) acrylic monomer.

19. (Amended) The polymer according to Claim 12

wherein the (A) component vinyl polymer has its main chain produced by polymerizing a styrenic monomer.

20. (Amended) The polymer according to Claim 12

wherein the (A) component vinyl polymer has a ratio (Mw/Mn) of weight average molecular weight (Mw) and number average molecular weight (Mn) as measured by gel permeation chromatography of less than 1.8.

21. (Amended) The polymer according to Claim 12

wherein the (A) component vinyl polymer has a number average molecular weight of 500 to 100,000.

22. (Amended) The polymer according to Claim 12

CLAIMS

1. A heat-curable composition comprising

(A) a vinyl polymer having at least one phenol group at the main chain terminus

and (B) a phenolic resin.

2. The heat-curable composition according to Claim 1 wherein the (A) component vinyl polymer has its main chain produced by the living radical polymerization of a vinyl monomer.

3. The heat-curable composition according to Claim 1 or 2

wherein the (A) component vinyl polymer has its main chain produced by the atom transfer radical polymerization of a vinyl monomer.

4. The heat-curable composition according to any of Claims 1 to 3

wherein the (A) component vinyl polymer is obtainable by the procedure comprising

(1) producing a halogen-terminated vinyl polymer by atom transfer radical polymerization and

(2) converting the terminal halogen of said polymer to a phenol group-containing substituent group.

5. The heat-curable composition according to any of Claims 1 to 4

wherein the (A) component vinyl polymer has its main chain produced by polymerizing a (meth)acrylic monomer.

6. The heat-curable composition according to Claim 5 wherein the (meth)acrylic monomer is a (meth)acrylic acid ester monomer.

7. The heat-curable composition according to Claim 6 wherein the (meth)acrylic acid ester monomer is an acrylic acid ester monomer.

8. The heat-curable composition according to any of Claims 1 to 4 wherein the (A) component vinyl polymer has its main chain produced by polymerizing a styrenic monomer.

9. The heat-curable composition according to any of Claims 1 to 8 wherein the (A) component vinyl polymer has a ratio (Mw/Mn) of weight average molecular weight (Mw) and number average molecular weight (Mn) as measured by gel permeation chromatography of less than 1.8.

10. The heat-curable composition according to any of Claims 1 to 9 wherein the (A) component vinyl polymer has a number average molecular weight of 500 to 100,000.

11. A shaped article as obtainable by curing the heat-curable composition according to any of Claims 1 to 10.

12. A polymer as obtainable by reacting (A) a vinyl polymer having at least one phenol group at the main chain terminus with (C) an aldehyde compound.

13. The polymer according to Claim 12 wherein the (A) component vinyl polymer has its main chain produced by the living radical polymerization of a vinyl monomer.

14. The polymer according to Claim 12 or 13 wherein the (A) component vinyl polymer has its main chain produced by the atom transfer radical polymerization of a vinyl monomer.

15. The polymer according to any of Claims 12 to 14 wherein the (A) component vinyl polymer is obtainable by the procedure comprising
(1) producing a halogen-terminated vinyl polymer by atom transfer radical polymerization and
(2) converting the terminal halogen of said polymer to a phenol group-containing substituent group.

16. The polymer according to any of Claims 12 to 15 wherein the (A) component vinyl polymer has its main chain produced by polymerizing a (meth)acrylic monomer.

17. The polymer according to Claim 16 wherein the (meth)acrylic monomer is a (meth)acrylic acid ester monomer.

18. The polymer according to Claim 17 wherein the (meth)acrylic acid ester monomer is an acrylic acid ester monomer.

19. The polymer according to any of Claims 12 to 15 wherein the (A) component vinyl polymer has its main chain produced by polymerizing a styrenic monomer.

20. The polymer according to any of Claims 12 to 19 wherein the (A) component vinyl polymer has a ratio (Mw/Mn) of weight average molecular weight (Mw) and number average molecular weight (Mn) as measured by gel permeation chromatography of less than 1.8.

21. The polymer according to any of Claims 12 to 20 wherein the (A) component vinyl polymer has a number average molecular weight of 500 to 100,000.

22. The polymer according to any of Claims 12 to 21 wherein the aldehyde compound (C) is at least one member selected from the group consisting of formaldehyde, hexamethylenetetramine, paraformaldehyde, furfural, acetaldehyde and salicylaldehyde.

23. A heat-curable composition comprising the polymer according to any of Claims 12 to 22.

24. A shaped article as obtainable by curing the heat-curable composition according to Claim 23.

25. A heat-curable composition comprising (A) a vinyl polymer having at least one phenol group at the main chain terminus,
(B) a phenol resin
and (C) an aldehyde compound.